

that the abnormal growth is produced in response to mechanical exigencies is not unreasonable. Resting as these roots do on a hard, unyielding substratum, the compression strain brought to bear on them when the tree bends in the wind would be much greater than if they rested in soft soil. From a mechanical standpoint the vertical thickening of the wood would strengthen the root against such a strain. Such an explanation is certainly in accord with the general idea of the most economical expenditure of growth-energy and of material, which, as Haberlandt has pointed out, is as general in the development of trees as in any organisms.

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THE BOLETACEAE OF PENNSYLVANIA

BY D. R. SUMSTINE

Our state is well represented in the number of species belonging to this family. Nearly two thirds of all the species known in the United States have been reported from Pennsylvania. The following is a preliminary list of the genera and species.

<i>Boletus affinis</i> Peck §	<i>decorus</i> Frost §
<i>albellus</i> Peck §	<i>dichrous</i> Ellis †
<i>alboater</i> Schw. †	<i>edulis</i> Bull. †
<i>alutaceus</i> Morg. §	<i>elegans</i> Schum. §
<i>alveolatus</i> B. & C. †	<i>eximius</i> Peck †
<i>Americanus</i> Peck *	<i>felleus</i> Bull. *
<i>auripes</i> Peck §	<i>flavidus</i> Fr. †
<i>auriporus</i> Peck *	<i>fragrans</i> Vitt. §
<i>badiceps</i> Peck §	<i>Frostii</i> Russell *
<i>betula</i> Schw. †	<i>frustulosus</i> Peck §
<i>bicolor</i> Peck *	<i>fulvus</i> Peck §
<i>bovinus</i> L. †	<i>glabellus</i> Peck *
<i>calopus</i> Fr. †	<i>gracilis</i> Peck †
<i>castaneus</i> Bull. *	<i>granulatus</i> L. *
<i>chrysenteron</i> Fr. *	<i>griseus</i> Frost *
<i>chromapes</i> Frost †	<i>illudens</i> Peck §
<i>crassipes</i> Peck §	<i>impolitus</i> Fr. §

- indecisus* Peck §
inflexus Peck †
innixus Peck *
luridus Schaeff.*
luteus L. †
n. innato-olivaceus Frost *
mutabilis Morg.*
Morgani Peck *
nebulosus Peck §
nigrellus Peck *
ornatipes Peck *
pallidus Frost †
parasiticus Bull.*
piperatus Bull.*
Pocono Schw. †
purpureus Fr. §
radicans Pers. §
retipes B. & C. §
Russelli Frost *
rubropunctus Peck §
satanus Lenz §
scaber Fr.*
- separans* Peck *
sordidus Frost *
speciosus Frost §
spectabilis Peck §
subaureus Peck §
subluteus Peck †
subsanguineus Peck §
subtomentosus L. †
subvelutipes Peck §
variegatus Swartz §
variipes Peck §
versipellis Fr. †
- Boletinus cavipes* (Opat.) Kalch. §
paluster (Peck) Peck §
pictus (Peck) Peck §
porosus (Berk.) Peck *
Fistulina hepatica (Huds.) Fr.*
firma Peck *
Strobilomyces strobilaceus (Scop.)
 Berk.*
floccopus (Vahl) Sacc.*

B. inflexus has thus far been reported only from Pennsylvania. The species reported by Schweinitz in his Synopsis are included in Peck's Boleti of the United States.

KITTANNING, PA.

October 3, 1904.

RECENT CONTRIBUTIONS TO OUR KNOWLEDGE OF PALEOZOIC SEED-PLANTS ||

BY EDWARD W. BERRY

Undoubted seeds of a gymnospermous character have long been known in considerable abundance as low down in the geo-

* In writer's collection, Carnegie Museum, Pittsburgh.

† Peck, Boleti of the United States.

‡ Herbst, Fungal Flora of the Lehigh Valley.

§ McIlvaine, One Thousand American Fungi.

|| Read before the Torrey Botanical Club, November 30, 1904.